

CLAIMS

- [1] A developing solution for use in the development of a photosensitive composition, characterized by comprising a compound, containing at least one hydrophilic group selected from the group consisting of an amine-N-oxide group, a sulfonate group, a sulfate group, a carboxylate group, and a phosphate group, and water.
- [2] The developing solution according to claim 1, wherein said photosensitive composition comprises a silicon-containing copolymer.
- [3] The developing solution according to claim 1 or 2, wherein said hydrophilic group-containing compounds are represented by general formulae (I) to (V):
- | | |
|-------------------------------------|-------|
| $R^{11}R^{12}R^{13}N \rightarrow O$ | (I) |
| R^2SO_3M | (II) |
| R^3OSO_3M | (III) |
| R^4COOM | (IV) |
| $R^5OPO_3M'_2$ | (V) |
- wherein
 R^{11} , R^{12} , R^{13} , R^2 , and R^4 each independently represent a substituted or unsubstituted alkyl, alkenyl or aryl group;
 R^3 and R^5 represent a substituted or unsubstituted alkyl, alkenyl, aryl, polyoxyethylene alkyl or polyoxyethylene alkylphenyl group; and
M and M' represent basic group.
- [4] The developing solution according to any one of claims 1 to 3, wherein said hydrophilic group-containing compound further comprises at least one group selected from the group consisting of an amine-N-oxide group, a sulfonate group, a sulfate group, a carboxylate group, and a phosphate group.
- [5] The developing solution according to any one of claims 1 to 4, which further comprises an antifoaming agent.
- [6] The developing solution according to any one of claims 1 to 5, wherein the content of the compound containing at

least one hydrophilic group selected from the group consisting of an amine-N-oxide group, a sulfonate group, a sulfate group, a carboxylate group, and a phosphate group is 0.005 to 2 moles/liter in total.

- [7] The developing solution according to any one of claims 2 to 6, wherein said silicon-containing copolymer contains a silazane bond.
- [8] The developing solution according to any one of claims 1 to 7, wherein the temperature is from 20 to 70°C.
- [9] A method for patterned photosensitive resist film formation, comprising coating a photosensitive composition onto a substrate, exposing the coating, and developing the exposed coating to form a patterned resist film, characterized in that the developing is carried out with a developing solution comprising a compound, containing at least one hydrophilic group selected from the group consisting of an amine-N-oxide group, a sulfonate group, a sulfate group, a carboxylate group, and a phosphate group, and water.
- [10] The method for patterned photosensitive resist film formation according to claim 9, wherein the temperature of the developing solution is from 20 to 70°C.